Steam Power and Millwork: By GEO. W. SUTCLIFFE. Whittaker & Co., London; Macmillan & Co., New York. 12mo, pp. xv. 886. 1895. $4.50.

This book is one of the excellent series for specialists published recently by this firm, and is a very good example of the kind of work now coming to be so common in technical departments. It is written for those who are interested in the design, manufacture and use of steam engines, mill machinery and similar apparatus, and presumably represents the condensed experience of its author. The book gives valuable information relative to the most modern systems of production and transmission of power, and the latest forms of engine boilers and transmitting mechanisms, and their details, including also instructions regarding their proportions and for their maintenance. The 157 illustrations are numerous and good, representing every essential detail of which description is given. Numerous tables are distributed through the pages of text, and afford a condensed presentation of facts and data required in the computation of designs. The discussion relates principally to the steam engine; but considerable space is given to rope and other transmissions, and the customary forms of power-transmission by the older methods. References are freely given, and the book is thus made, not only intrinsically valuable, but a key to the extensive literature of its subject and field. The book will prove an excellent contribution to the library, especially of the young engineer.

R. H. T.

NOTES AND NEWS.

JOINTS IN THE VERTEBRATE SKELETON.

IN the last number of the *Archiv für Entwickelungsmechanik der Organismen* is the completion of Gustav Tornier's elaborate investigation upon 'The Origin of the Forms of the Joints in the Vertebrate Skeleton.' The writer is apparently unaware of the work which has been done upon the same subject by Ryder, Cope and others in this country, and his conclusions are therefore of all the greater interest since, while independently reached, they are in accord with the American Neo-Lamarckians so far as the adaptive power of individual reaction is concerned. He concludes as follows: The forms of the joints arise by the adaptation of the organism to external conditions of life, and are the results of mechanical influences which are directed upon the joint apparatus by the action of the muscular system. These mechanical stimuli act directly upon the joints, and lead not through the reproductive cells, but directly through the transformation of those parts of the body which are under these changing influences. Joints, therefore, arise according to the principle announced by Wilhelm Roux of 'functional adaptation,' and of the 'self formation of the useful,' 'of adaptation of the organism to functions through the exercise of these functions.' Since comparative anatomy affords the surest tests of the truth of these principles, proofs which have not had their inspiration in Roux's declarations, but have led a long way toward them and are still showing the application of these principles in questions of theoretical evolution, how useful it would be were these principles also extended into other fields of research! At the same time these proofs indicate that comparative anatomy united with pathology present two of the routes by which this goal can and will be reached. This number also contains the experimental studies in teratogeny by Mitrophanow, and a continuation of Driesch's experimental work.

This journal has become the medium of publication of the new school in Germany which revolts against the extreme to which Weismann has carried the theory of selection, and represents partly the thought